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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BALI, VIKKRAM

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 03/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/493,663

Applicant(s)

DO, DOUGLAS D.

Examiner

Vikram Bali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 12-13 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Addiego (US 5917588).

With respect to claim 1, Addiego discloses a wafer inspection system that scans the wafer into plurality of images corresponding to the respective areas select two of the plurality of areas (see figure 2A, scanning of the wafer, see col. 5, lines 35-40, and figure 7, that shows the wafer 14 with the plurality of dies i.e. plurality of images, and the two adjacent images are selected for the evaluation, see col. 10 for the description); deriving a spatial relation between the selected images, and forming the pattern to be recognized (see col. 8, lines 59-68, the inspection system acquire the image of the wafer, select the two images, the two images are adjacent "spatial relationship between the two selected images" and then subtract the two images to get the pattern i.e. the defect that gets classified i.e. "to be recognized") as claimed. However, he fails to disclose displaying a plurality of images; as claimed. But, as shown on the figure 2A the system includes a numerical 87, Host computer and from col. 6, lines 20-32, it is obvious that there is a monitor "display" included in the Host computer that helps the

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user to inspect the entire process of the inspection. Therefore, it is obvious to one ordinary skilled in the art at the time of invention to include a display equipment in to the Addiego's system in order to see the system or to inspect the system i.e. to make sure that the system is performing in the manner that is required.

With respect to claim 2, he further discloses: storing the information associated with the selected images and the spatial relationship on a computer readable medium (see col. 6, lines 22-31, the numerical 87 is the host computer and the computer inherently includes the memory) as claimed.

With respect to the claim 3, he further discloses: the use of the stored selected images and the stored spatial relationship in a pattern recognition analysis to detect the defect (see figure 8, the defect extraction 220, and the classification 222, the defects are detected and are classified) as claimed.

Claim 4 is rejected for the same reasons as set forth for the rejection of claim 3 as claim 4 is claiming similar subject matter s claim 3.

With respect to claim 12, Addiego further discloses: the device is a semiconductor wafer, (see col. 5, lines 7-9, wafer 14).

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With respect to claim 13, Addiego further discloses: the areas are the contacts, (see col. 1, lines 22-26, the inspection of the wafer is for checking for the incomplete or extra photoresist coverage, region of defocus etc.) as claimed.

With respect to claim 18, Addiego further discloses: the spatial relationship comprises...between pairs of the selected images, (see figure 7, the adjacent images "spatial relationship" is between the two pair of images i.e. the two adjacent images are selected) as claimed.

3. Claims 5-11, 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Addiego in view of Levy et al (US 4579455).

With respect to claim 5 Addiego discloses the invention substantially as disclosed and as described above in claim 1. However, he fails to disclose: displaying at least two selection windows with the displayed images and placing the two image selection windows over the images, as claimed. Levy teaches the two windows on the two images (see figure 6, numerical 180 as first window and numerical 182 as second window and the images included in those windows are the images selected) as claimed.

The two references are combinable as they are analogous because they are solving similar problem of inspecting the specimen.

It would have been obvious to one ordinary skilled in the art at the time of invention to simply use the feature as disclosed by the Levy of selecting the images using the windows in to the Addiego's inspection system in order to provide a improved

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defect detection method by reducing undetected defects and reducing false detected defects.

With respect to claim 6 and 7, Levy further teaches: image selection windows are placed over ...properly formed areas and image selection windows are placed over ...defective formed areas (see figure 6, the window 180 is placed on the area where the exist some connection i.e. properly formed areas and the window 148 is placed where there is no connection i.e. defective formed areas) as claimed.

With respect to claim 8, Addiego and Levy fail to disclose the apparatus that prompt for a number of image selection windows, as claimed. But, as seen from the figure 6 of Levy there exist more then one window, and also it is well known in the art to have a GUI i.e. a graphical interface between the machine/computer and the user to input the commands in to the computer. Addiego does disclose a Host computer for monitoring the inspection system, figure 2A numerical 87. Therefore, it would have been obvious to one ordinary skilled in the art at the time of invention to incorporate the GUI into the computer in order to receive the commands from the user, as it is well known in the art.

With respect to claim 9, Levy teaches: displaying the image selection window, and placing the image selection window over a displayed image (see figure 6, numerical 180, the window is placed on the circuit image), determining if another window is

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required and if another window is required, displaying the image selection window, and placing the image selection window over a displayed image (see figure 6, there exist more than two windows, it is obvious that the determination is made to find out if more than two windows are required, and the window numerical 166, 176, 154 are placed on to the images) as claimed.

Claims 10 and 11 are rejected for the same reasons as set forth for the rejection of claims 6 and 7 as claims 10 and 11 are claiming similar subject matter as claims 6 and 7.

Claims 14-16 are rejected for the same reasons as set forth for the rejection of claims 5, 6-7 and 9 as claims 14-16 are claiming similar subject matter as claims 5, 6-7 and 9 respectively.

With respect to claim 17, Levy further teaches the device is a reticle, (see col. 1, lines 8-11, a photomask "reticle" inspection apparatus) as claimed.

Claims 19-39 are rejected for the same reasons as set forth for the claims 1-18, because claims 19-39 are claiming subject matter as claimed in claims 1-18.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikkram Bali whose telephone number is 703.305.4510. The examiner can normally be reached on 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703.308.6604. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9314 for regular communications and 703.872.9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.306.0377.

Vikkram Bali
Examiner
Art Unit 2623



vb
March 14, 2003